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ABSTRACT

This project was designed to compare three preschool curricula, with staff model and program operation held constant. The curricula were (1) a unit-based curriculum emphasizing the social-emotional development goals of the traditional nursery school, (2) a cognitively-oriented curriculum developed by the Ypsilanti Perry Preschool Project, and (3) the Bereiter-Englemann language training curriculum. All three of these programs have carefully planned daily activities and clearly defined week-by-week goals. The subjects for the study were 3- and 4-year-old functionally retarded disadvantaged children. There was a no-treatment control group. Teachers conducted classrooms and home teaching sessions within the curriculum style they chose. The results of pre- and posttest tests (including the Stanford-Binet and Peabody Picture Vocabulary Test) are highly unusual. The gain scores of the treatment groups are remarkably high (significantly higher than the control group's scores), but there is no significant difference in scores among the three different curricula suggesting that the variables held constant in this experiment (staff model, method of project operation, and specific task orientation of the curricula) are at least as important as curriculum content in producing favorable developmental gains. (MH)

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COMPARATIVE STUDY OF THREE PRESCHOOL CURRICULA

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Comparative Study of Three Preschool Curricula[a]

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Introduction

Recent efforts through massive Federal and State programs to improve the intellectual and academic performance of disadvantaged children through compensatory education projects have met with only limited success. Both professionals and parents are gradually becoming aware of this fact, with disquieting results. Professionals are openly pessimistic and are often ready to reduce support for programs and limit their own involvement. Parents of disadvantaged children are increasingly aggressive in their demands for action. They are determined that someone is going to assume the blame for years of waste of human potential while ivory tower theorists wrestled with minutia and the educational "establishment" promoted its own interests. And the worst is yet to come as the details of compensatory education's limited successes become more widely known.

Professional educators and psychologists are expressing in public observations and conclusions limited to private conversations several years ago. Jencks (1968), writing in the New York Times Magazine about the outcome of any compensatory or remedial program, said: "Unfortunately, none of these programs has proved consistently successful over any significant period." This indictment has been verified by a group of researchers from the American Research Institute reviewing compensatory programs covering preschool through 12th grade for the period 1963 to 1968 for the U.S. Office of Education.

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Hawkridge, Chalupsky, and Roberts (1968) found only 21 compensatory educational programs which met a criterion of improved intellectual or academic functioning in a total sample of over 1000 such projects nominated for the study from throughout the country.

Parents of all minority groups are becoming increasingly outspoken in their criticism of the schools. Recently in Harlem a parent at a Follow Through advisory committee meeting asked when the experimental project was going to teach her kindergarten youngster his ABC's. Strongly supported by the other parents with vigorous head nodding and comments of "you tell it" and "that's right," the mother proceeded to read off the school in which her children had failed to learn and to place the blame on the teachers, the curriculum, and the administration. This parent had no concern for the theoretical basis of curriculum development; she wanted education for her child now. She was especially bitter about the implication common in professional circles that her children had failed because she had failed as a parent. Such parents seem to be convinced that shifting the blame for learning failure upon the school and teachers will miraculously produce a reformed institution providing adequate education relevant to and respectful of their children.

While there is developing a consensus that compensatory education is limited in its potential for ameliorating the educational deficits found in disadvantaged children, it is inconceivable that these efforts should be abandoned. The social pressure created by the poor, especially in the cities, is simply too great, and social conscience demands further effort. It is essential, then, that we examine those programs which are successful to find, if possible, key elements that can be employed to improve the potential for success.

Most compensatory education efforts have focused on curriculum reform, especially on making educational content relevant to the interests of the

youngsters. The project reported in this paper started as a curriculum comparison study. As a research project, other components such as program operation and staff model were held as constant as possible. While the various curricula proved to be necessary elements, the outcome of the project strongly suggests that other components are of critical importance. In order to examine this finding in some detail, a description of the project will be presented, followed by a presentation and discussion of the results.

Problem

Since 1962, research projects throughout the country have attempted to determine whether or not preschool intervention with three and four year olds makes a difference in later school performance. Various projects following several theoretical models have now either reported initial findings or filed final reports (Deutsch, 1968; Klaus and Gray, 1968; Weikart, 1967; Curtis and Berzonsky, 1967; Hodges, McCandless, and Spicker, 1967; Karnes, Teska, and Hodgins, 1969; Di Lorenzo and Salter, 1968). While the cumulative results of these projects offer little to cheer about, the basic conclusion is that the more structured or task-oriented the program, the greater the gains in immediate intellectual competence and, where follow up data are available, academic achievement. While further development of specifically programmed curriculum styles and assessment of various intervention methods against "no treatment" control groups is essential, investigation of the relative effectiveness of curriculum models now available is of equal importance. The preschool field has reached a point at which several theoretically divergent curricula may be pulled together in a controlled study to determine their relative impact upon the cognitive, social-emotional, and academic growth of the disadvantaged child.

Although several such comparative studies are underway, little information is available. Karnes (1969) has reported the most extensive data. She found that two specially designed cognitive programs (the Bereiter-Engelmann Language Training project and the Karnes curriculum based on the Illinois test of Psycholinguistic Abilities) were more effective in promoting intellectual growth than was a traditional nursery school program. Dickie (1968) reports on the effectiveness of three methods of language instruction in preschool and finds no difference in the effects of unstructured vs. structured methods of instruction. The training was limited to 20 minutes each day with no instructional carry-over into the 2-1/2 hour total program. Di Lorenzo and Salter (1968) report better success with structured programs of the Bereiter-Engelmann type than with unstructured traditional preschool programs. The study was not designed to explore the impact of differing curricula, and the finding is incidental to the total evaluation of their large research project. Much more information is needed to evaluate the relative impact of various available curricula upon the development of disadvantaged children.

Method

The Ypsilanti Preschool Curriculum Demonstration Project was established in the fall of 1967 to document and evaluate three curricula thought to have remedial potential for the disadvantaged: (a) A unit-based curriculum emphasizing the social-emotional development goals of the traditional nursery school programs. The hallmarks of this curriculum are introduction of themes and material to acquaint the child with the wider environment, close attention to the individual social and emotional needs of each child, and a considerable degree of permissiveness in classroom operation (Sears and Dowley, 1963). (b) A cognitively oriented curriculum developed over the last five years by the Ypsilanti Perry Preschool Project (Weikart, 1967). This is a carefully

structured program specifically designed for use with disadvantaged children who are functionally retarded. The curriculum is based on methods of "verbal bombardment," socio-dramatic play, and certain principles derived from Piaget's theory of intellectual development. (c) A language training curriculum emphasizing learning of academic skills. This curriculum was developed by Bereiter and Englemann (1966) at the University of Illinois. It is a task-oriented curriculum employing many techniques from foreign-language training and includes the teaching of arithmetic and reading. While this program was specifically developed for disadvantaged children, it has not been tried out on functionally retarded youngsters. The project employs the most recent material published for this program.

The children for the curriculum study are drawn from the total available three and four year old population of functionally retarded disadvantaged children in the Ypsilanti school district. The contrast group is one of the five no-treatment control groups employed in the five year Perry Preschool Project. All treatment groups are balanced by measured intelligence, sex, and race. Two teachers are assigned to each curriculum model after they have had an opportunity to express a preference. They teach class for half a day and then conduct a teaching session in the home of each of their children for 90 minutes every other week. The home teaching phase of the curriculum is executed in the same curriculum style as the classroom program the child attends.

Essential to the demonstration aspect of the project is that all three programs have clearly defined week-by-week goals. The curriculum implementation follows a carefully planned daily program designed by the teachers themselves to achieve the goals of each curriculum. This provision for teacher involvement is a crucial aspect of the overall project.

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Results

Results of the project are available from the first year of operation. The replication of the study is now underway, and the data from the second year, along with follow up information on the first year, will be available in the fall of 1969. The data now available are based on intelligence tests scores, social-emotional and general developmental ratings by teachers, and systematic classroom observations.

Intelligence tests. Data from intelligence tests indicate the immediate impact of the programs upon the general level of functioning of the children involved. Scores are in no way considered to be indicative of either innate ability or potential capacity. Standardized intelligence tests are easily available indicators of effective programming, and for the population under study here, help to predict later social adjustment in school and academic achievement (Weikart, 1967).

Tables 1 and 2 present the information from the Stanford-Binet, Form LM, as pre-test, post-test, and change scores. Both Wave 5[a] and Wave 6 change scores are significantly different across groups when the contrast groups are included in the analysis. However, with the contrast groups removed, no significant differences are found among treatment groups. The three year olds in the program of Wave 6 have almost identical I.Q. gains with a narrow range of 27.5 to 30.2 points gained. The four year olds in Wave 5 show a range of 17.6 to 24.4 points gained. Three year olds seem to typically record greater gains than four year olds, reflecting the type of items on the Stanford-Binet,

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[a]Waves, 0, 1, 2, 3, and 4 were part of the original Ypsilanti Perry Preschool Project which started in the fall of 1962. Each curriculum group of Wave 5 (4 year olds) and Wave 6 (3 year olds) attended one school together. Wave 5 Cognitive program children had completed two years of preschool at the post-testing. The pre-test scores for all children are from the first Stanford-Binet administration, and the post-test scores are from the most recent testing (June, 1968). The contrast group is Wave 3 control group of the Perry preschool project taken at ages 3 and 4, and is typical of no treatment controls throughout the five years of that study.

the greater malleability of this age group in situations producing change, or the impact of large mental age changes on a limited chronological age base. The essential point of the table, however, is that all groups gained equally. Indeed, at the three year old level almost identical gains were obtained by children in each of the three programs.

Table 1

Stanford-Binet Scores

Wave 5

(4 yrs; 2 yrs)

	Unit (N-8)		Cognitive (N-11)		Language (N-8)		Contrast (N-14)		F-ratio
	M	SD	M	SD	M	SD	M	SD	
Pre-test	76.4	4.55	75.3	6.06	73.9	5.33	80.8	2.90	
Post-test	94.1	2.42	98.6	12.82	98.2	9.43	84.1	9.70	
Change	17.6		23.4		24.4		3.8		11.385*

*p .01

Table 2

Stanford-Binet Scores

Wave 6

	Unit (N-8)		Cognitive (N-4)		Language (N-8)		Contrast (N-14)		F-ratio
	M	SD	M	SD	M	SD	M	SD	
Pre-test	73.6	6.93	82.7	5.26	84.4	3.12	80.8	2.90	
Post-test	101.1	7.08	110.7	12.34	114.6	6.14	81.2	10.10	
Change	27.5		28.0		30.2		0.4		25.3940*

*p .01
(Younger Ss gained more in 1 yr than older Ss gained in 2 yrs)

Tables 3 and 4 present post-test scores for the three curriculum treatment groups on the Leiter International Performance Scale and Peabody Picture Vocabulary Test. Again, all three treatment groups obtained scores that are not significantly different. The results do not show any predictable pattern. The Leiter is in the expected direction for the Wave 5 children. The Unit and the Cognitive programs, being more manipulative and object experience oriented, have the higher scores. However, the pattern is not repeated with Wave 6 children. Then too, the Peabody is clearly in the expected direction for Wave 6 with the Language Training children obtaining higher scores. The reverse is true, however, of Wave 5 children. In general, the Stanford-Binet gives the highest estimate of the child's functional level. The essential point is that there are no significant differences in intelligence test scores for the children in the three treatment groups, and the gains are unusually large.

Table 3

Wave 5 (4 year olds) Leiter International Performance Scale and Peabody Picture Vocabulary Test Post-test Scores

	Unit (N-7)		Cognitive (N-11)		Language (N-7)		F-ratio	P
	M	SD	M	SD	M	SD		
Leiter	96.0	6.07	93.9	11.10	89.8	9.97	<1	NS
Peabody	94.7	19.65	84.0	20.46	77.3	13.80	<1	NS

Table 4

Wave 6 (3 year olds) Leiter International Performance Scale and Peabody Picture Vocabulary Test Post-test Scores

	Unit (N-8)		Cognitive (N-4)		Language (N-8)		F-ratio	P
	M	SD	M	SD	M	SD		
Leiter	103.2	19.77	112.7	0.83	110.6	7.79	1	NS
Peabody	78.0	7.61	84.7	9.30	88.4	9.45	1.3656	NS

Classroom teacher ratings. The teachers in each program were asked to rate all children in their program on two scales: Pupil Behavior inventory and the Ypsilanti Rating Scale. These instruments reflect such factors as independence, academic competence, emotional adjustment, socio-emotional state, etc. These ratings were completed by each team of teachers for their own class; as such they are not independent indicators of the actual behavior, etc., of the children. When these data are analyzed according to curricula, there are no significant differences. The children in each of the three programs are seen by their teachers as being much the same in spite of differentiated program focus fostering potentially differentiated modes of adjustment. In addition, it is also important to note that the teachers in all three programs rated children who showed academic competence as emotionally adjusted ($y=.67$, $p < .01$).

Classroom Observations. A recent paper by Seifert (1969) reports on the observations of classroom behavior in the Cognitive and Language Training programs (the Unit program was not observed) using the OScAR method. Observing group teaching sessions and employing total statements per minute, verbal feedback by teacher, amount of pupil-initiated interaction, amount of direct

teacher management of pupil, and amount of affect expressed by teacher, Seifert found only total statements per minute as a significant difference between the two programs. The language program apparently does not operate differently, just more intensely.

Thus, in analyzing data from intelligence tests, teacher ratings, and classroom observations, no statistically significant differences are found among the programs. The gains recorded in intelligence tests are unusually high. While long-term follow up data on school achievement, social adjustment, and eventual disposition of I.Q. level are not available at this time, data from the five year Perry Preschool Project indicate that children who show early and rapid intellectual growth as a result of preschool intervention also show later social adjustment and academic achievement.

Discussion

These results are unexpected. While there is no special merit in finding no differences among treatment groups, these results, obtained in a compensatory education project with disadvantaged children; raise two critical questions: 1) Why are the intelligence test change scores so large; that is, why are I.Q. gains far above those usually reported in the literature? and 2) Why are there no differences in impact among curricula?

It must be stated that these programs really are different in their apparent or symptomatic operation. As part of the evaluation program a wide range of outside critics are brought to Ypsilanti to appraise the program. Among these consultants have been E. Kuno Beller, Marion Blank, Courtney Cazden, Joseph Glick, Lawrence Kohlberg, and Todd Risley. These critics find the programs different in theoretical commitment and differentiated in application. The Unit and Cognitive curricula are more similar to each other in classroom operation than either is to the Language Training program. The observations of

these critics along with the systematic data collected from the approximately 850 visitors who have spent one to five days at the demonstration center in the last year clearly indicate that the programs appear to operate differently. Thus, even though the results of the programs are the same, when children are measured on general tests, it may be assumed that the operation is actually different for each.

Why are the change scores so large? The answer to this question is difficult and would seem to revolve around the selection of the curricula, staff model for program implementation, and the method of project operation.

1. Curriculum. Each of the three classroom units had a clear commitment to a specific theoretical curriculum model. This use of a model provided a framework that set limits for classroom operation and provided a challenge to the teachers. For example, the Cognitive program, derived in part from Piagetian theory, was intellectually challenging and suggestive of specific teaching methodologies. The same was true of the other two curricula to some degree. A framework also helped the teacher select appropriate activities, match program with desired outcome, and fit total classroom operation into a scheme directed at producing specific end products. However, it must again be noted that, at least among the three curricula studied here, the outcomes seem to be the same. The condition of no curriculum, typical of many preschools, was not tested.

2. Staff Model. A research and demonstration project produces a fairly specialized environment for staff operation. Since this particular project was aimed at the study of relative curriculum impact, the way the staff operated was kept uniform in all three programs. Some of the factors directly contributing to the unusually good results are:

a. Planning. All teachers had to prepare lesson plans at least a week in advance based upon the specific goals of the theoretical framework for their program. These plans proved to be a daily struggle demanding much thought and

preparation, and they were available to visitors viewing the demonstration and to supervisors and consultants working with the teachers. The planning forced specific attention on the use of time in the classroom and the particular goals for each unit of operation. It provided opportunity for a constant review of curriculum effectiveness.

b. Team teaching. Two teachers were assigned to each classroom unit for teaching in and operation of one of the program models. Both teachers taught all the time, necessitating a constant effort to develop activities and to solve problems within the theoretical framework of the particular model they were employing. The team relationship permitted focus and support on classroom problems.

c. Commitment. In order to meet the expectations of the project and to be effective in the classroom, the teachers had to spend time over and above regular teaching time to stay ahead of the demands. Lunch hours, after school, "break times," etc., were often employed to prepare lessons, write reports, and meet with various staff members and visitors. This type of involvement came from a firm commitment to the program. It also meant that the program operated in each classroom was a direct expression of the individual teachers.

d. Supervision. Each team of teachers was supervised by an experienced teacher who worked with them to provide focus and to "referee" problems within the team. Rather than smoothing over problems, the supervisor worked with the teachers to help them face the issues and to work out a solution within the theoretical framework of their particular curriculum model. The supervisor also provided inservice training for the teachers within their curriculum model. While not authoritarian in operation, the supervisor was clearly responsible for helping the teachers keep to the instructional problems at hand.

c. Respect for individual. The project was operated as a group of professionals working to produce information. While this group operation ideal

often broke down, the project attempted to keep all staff members in communication. It was interaction that gave the staff members an actual part in the development of the total project. It also kept the project "honest" by forcing all involved to consider all aspects of decisions.

3. Program operation. Several things that characterized the project operation would be expected to have impact on the quality of the results.

a. Involvement of the mother. Each of the three curricula included home teaching as part of the program in order to actively involve the mother in the process of education. While group meetings were held about once a month and some preschool observations were scheduled, the primary focus with parents was the educational activities in the home. The mothers responded well to these visits and increased their participation throughout the period of preschool attendance by their youngsters. The staff felt home teaching provided powerful supportive action for the child's growth.

b. Focus on the child. In order to prepare for the 90 minute home teaching session, the teacher would direct her attention to the particular problems of the child before the visit. Upon returning from the home the teacher would write a report on the visit documenting her observations. The home teaching sessions, therefore, provided an unusual opportunity for the teacher to focus upon the learning problems of each child. This knowledge was carried over into the classroom instructional program.

c. Focus on education. The project did not have professional staff other than teachers and research personnel. The project did not offer social work services, health services, referrals to clinics, agencies, etc. The teachers and the project families saw the teacher's role as clearly educational in nature. This single-purpose approach is practical in Southeastern Michigan where the services of the many agencies are readily available.

d. Language. Essential to the operation of all three curricula was the heavy use of language in the classroom with the students. While the method of language training varied greatly, in all the classes language was used extensively by the adults and was encouraged in the children.

Why are there no differences in impact among curricula? This question is difficult to answer because the results are much better than expected. Generally, projects of this nature obtain similar results among intervention styles because none of the methods are very effective. This was not the case with this project. Among the many factors that may have contributed, three seem most crucial:

1. The staff model and program operation are constant. In the original design, the curricula were varied and the staff model and program operation were kept constant. From the initial data collected in this study, then, it is apparent that the choice of a curriculum framework is only of minor importance as long as one is selected that permits the intensive operation suggested by the staff model and program operation requirements.

2. The curricula are equivalent. The project data suggest that children may profit intellectually from any structured curriculum that is based on a wide range of experiences. In almost the sense that Chomsky uses in talking about the development of linguistic competence, a child has the potential to develop cognitive skills and good educational habits if he is presented with a situation which requires their expression. Kohlberg (1968) concluded that a child needs broad general forms of active experience for successful development of adequate cognitive abilities. He commented that a variety of specific types of stimulation are more or less functionally equivalent for cognitive development. These three curricula, as diverse as they appear to be, apparently are equivalent.

3. The staff expectations for the children are high. Much has been said recently about the "Rosenthal" effect and the impact of motivational changes on

preschool outcomes when assessed by standard tests. Certainly a portion of these gains has been produced by these factors. For example, Zigler (1968) identified a change of about six to ten I.Q. points as a product of improved motivation. Rosenthal has reported impressive gains in test performance by children in early grades labeled as "bright" for teachers by outside researchers. While these factors contributed to the size of the gains reported here, it is assumed that they were operating equally in all programs and that such gains were only a portion of the total.

Conclusions

The basic implication of these findings is that a shift in focus is necessary for both preschool education and compensatory education. The heavy emphasis on curriculum development, while important, has greatly overshadowed the need for careful attention to both the staff model and the program operation employed by a project. Either the mechanical application of a specific curriculum or the busy concern with administrative procedure that any program operation entails will doom a project to failure.

For preschool operation these findings mean that a staff is free to develop or employ any active curriculum that is believed to match the needs of the children so long as that curriculum provides an adequate vehicle for staff expression and program operation. The arguments about the relative effectiveness of the various approaches to preschool education are irrelevant. Then too, waiting for the curriculum for disadvantaged children to be developed so that early education programs can be effective is pointless. The process of creating and the creative application of a curriculum, not the particular curriculum selected or developed, is what is essential to success.

In addition, program operation must include careful attention to three areas. First, the program must include opportunity for the teacher to intensively think about each child in the project. Teachers apparently treat the educational development of young children more effectively if they evolve an intimate knowledge of how a child learns and responds through their own direct experience with that child. Second, the project must provide a way to include mothers in the educational process. This is not so much a transfer of information or experience to the mother as an attempt to create an atmosphere of support for intellectual growth in the home. Third, the staff model employed must allow opportunity for each individual to be creatively involved in the total operation. While administrative direction and good curriculum selection are important in obtaining program success, staff involvement is crucial. In an almost romantic sense, the human involvement of concerned teachers and staff is the key element in program success.

Featherstone, in a recent article, comments on the British Infant Schools:

> But the danger I'm most anxious to avoid is leaving the impression that one can single out a few elements of a good school and turn them into a formula to impose on teachers and children in other schools. There is no single lever to pull, or technical solution. What we can do is work toward an idea of the kind of learning we wish to promote. That, among other things, is a matter of choosing what we value. (1969)

Our data agree with Featherstone's observation that there is no single lever to pull and certainly no technical solution. Compensatory education can reach the child through a range of programs appropriate to him. To be effective, however, it is necessary that the programs be organized and operated in such a manner as to allow the full utilization of human insight and commitment.

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